

July 1, 1980

SECY-80-318

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## COMMISSIONER ACTION

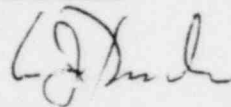
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For:

The Commissioners

From:

James R. Shea, Director  
Office of International Programs



Thru:

Acting Executive Director for Operations

Subject:

APPROVAL OF A PROPOSED LICENSE TO EXPORT HIGH-ENRICHED  
URANIUM TO JAPAN (LICENSE APPLICATION NO. XSNM01408)

Purpose:

Commission review of proposed issuance of subject license to  
Nissho-Iwai American Corporation.

Review Dates:

60-day period expires on August 18, 1980.  
120-day period expires on October 17, 1980.

Discussion:

In November 1978, Nissho-Iwai filed an application for a license to export 47,162 kilograms of uranium, enriched to 93.3%, containing 44,003 kilograms of U-235 to Japan for use in the Japan Materials Testing Reactor (JMTR), the Japan Research Reactor No. 2 (JRR-2), and the Japan Research Reactor No. 4 (JRR-4). By letter dated January 25, 1980, the staff was informed that the material, in the form of uranium metal, will be fabricated into fuel elements by Nuclear Fuel Industries Limited in Japan. The material will be distributed in the following quantities: 35.624 kilograms (33,238 kilograms U-235) to the JMTR; 10.584 kilograms (9.875 kilograms U-235) for the JRR-2; and 0.954 kilograms (0.890 kilograms U-235) for the JRR-4.

The 50 megawatt thermal JMTR, which began operation in 1968, is Japan's principal reactor for testing materials in a high neutron flux. The JRR-2, which began full operation in 1962, is a 10 megawatt thermal reactor used for neutron physics, materials irradiation, and isotope production. The JRR-4, a 1 megawatt thermal pool type reactor which began operation in 1965, is used for reactor physics and shielding experiments.

In response to our November 22, 1978 request for views, the Executive Branch has (1) concluded that issuance of the proposed license would not be inimical to the common defense and security of the United States, if the license were conditioned to provide that the material, for the international portion of shipment, shall be transported by all-cargo military aircraft or in quantities not to exceed 15 kilograms of U-235 per flight by commercial cargo aircraft or 5 kilograms U-235 if transported by sea; (2) confirmed

Contact:

Janice Dunn Lee, IP (49-27984)

Discussion:  
(Continued)

that the material will be subject to all the terms and conditions of the US-Japan Agreement for Cooperation; (3) noted that Japan has adhered to the provisions of the Agreement for Cooperation with the United States; and (4) advised that there were no material changed circumstances since submission of its detailed analysis of April 30, 1979 on a proposed export to Japan (see XSNM01435 SECY-79-14B).

Among other things, the Executive Branch memorandum notes that:

- o The President has approved the proposed export and since it involves projects and facilities with which the U.S. has previously supplied HEU, no new U.S. commitment to supply HEU would be created by NRC approval of this case.
- o In conformance with policy direction to minimize unirradiated HEU inventory, the quantity under this export request, in conjunction with material requested under application XSNM-1340 (which is being forwarded separately for Commission consideration), is limited to that expected to be sufficient for not more than two and one-half years of reactor operation from the time of the export. This is considered a reasonable period to allow for export, transportation, and fabrication of fuel and maintenance of fresh fuel reserve sufficient to assure the continuous and economic operation of the reactor.
- o In mid-1979 the JMTR had about 63 kilograms of U-235 (93% enrichment) in the conversion/fabrication process. Since the JMTR requires approximately 35 kilograms of U-235 per year for normal operation, this amount would permit about one and one-half years operation, or through 1980. Therefore, the material requested in the application at hand for the JMTR, and that requested in application XSNM01340 for the JMTR (a total of approximately 59 kilograms of U-235) would allow normal operation through 1982.
- o The JRR-2 requires about 10 kilograms of U-235 (93% enrichment) per year to ensure normal operation. The JRR-2 has 11 kilograms of U-235 in the conversion/fabrication process and another 6 kilograms in fabricated, unirradiated fuel element form. This amount would allow the operation of the JRR-2 for approximately one and one-half years, or through 1980. The material requested for the JRR-2 in applications XSNM01340 and XSNM01408 (a total of 20 kilograms of U-235) would allow for normal operation through 1982.

- 0 The JRR-4 has 1 kilogram of HEU in the conversion/fabrication process and 0.3 kilograms in fabricated, unirradiated fuel element form. Since the JRR-4 requires about 1 kilogram of U-235 (93% enrichment) per year for normal operation, this amount would allow operation through 1980. The material requested in the application at hand for the JRR-4, and that requested in XSNM01340 (a total of 2 kilograms of U-235) would allow normal operation through 1982.
- 

Although Executive Branch views initially were received on January 30, 1980, actions on this case and several other proposed HEU exports to Japan and EURATOM were delayed pending clarification by the Executive Branch, at our request, of matters relating to transportation of the proposed exports, and in particular the Executive Branch's requirements regarding shipping conditions on the license, which raised problems for our staff.

On June 19, 1980, the staff received additional comments from the Executive Branch which amended its views on conditioning the license. Since the Executive Branch has now been informed by the license applicant that the material will be transported directly to Japan by sea in tranches of 5 kilograms or less, and it understands NRC has no objection to this mode of transportation, the Executive Branch believes that a license condition requiring specific modes of transport is no longer necessary. This procedure is satisfactory to the staff. (The Commission will note that this shipping issue is addressed generically and in greater detail in a separate staff paper (SECY-80-193, classified, dated April 18, 1980)).

The staff has examined the question of whether it would be possible to operate the JMTR, JRR-2, and JRR-4 facilities on uranium of lower enrichment. Argonne National Laboratory (ANL) completed its technical and economic analysis of the possibility of converting these reactors to reduced enrichment fuels. Based on independent studies at ANL and the Japan Atomic Energy Research Institute (JAERI), the owner and operator of the reactors, both ANL and JAERI agree that all three reactors can be converted to 45% enrichment fuel when this high density fuel is available. We are informed that JAERI is planning a five year program with the goal of a full core demonstration with 45% fuel in all three reactors in mid-1983. ANL and JAERI are also planning a joint program to study the feasibility of using less than 20% enriched fuel in the three reactors.

International  
Safeguards and  
Foreign Physical  
Security Review:

The staff has little information on the effectiveness of IAEA safeguards implementation at the Nuclear Fuel Industries fabrication facility, the Japan Materials Testing Reactor (JMTR), and Japan Research Reactors 2 and 4 (JRR-2 and JRR-4). All of these are covered by IAEA facility attachments and have been under IAEA safeguards for several years.

With respect to physical security, the staff has reviewed the program in Japan and found it adequate for the purposes of this export. A supplemental report (CNSI) regarding physical security was forwarded to the Commission on March 28, 1980 as SECY-80-167. For the purposes of this export, the licensee and the consignee have decided to transport the material in less than 5 kg quantities.

Conclusion:

The staff believes that there are no material changed circumstances concerning exports to Japan which would affect the Commission's considerations of licensing criteria and which have occurred since issuance of export licenses (e.g. XSNM01271, SECY-80-120A, and XSNM01435, SECY-79-14C) for material to Japan after Commission review.

Accordingly, the staff believes that this proposed license to Japan should be issued. This procedure is authorized by §110.44(a)(2) of Part 110 and is based on section 126(a)(2) of the AEA as amended by the Nuclear Non-Proliferation Act of 1978.

The following documents are forwarded for Commission review of the subject application: (1) application of November 3, 1978 and request for amendment dated January 25, 1980 (Appendix A); (2) Executive Branch views of January 29 and June 18, 1980 (Appendix B); and (3) copy of proposed license (Appendix C).

This action involves no new resource requirements.

Recommendation:

That the Commission authorize the issuance of the proposed license to Nissho-Iwai American Corporation.

Coordination:

OELD has no legal objection. NMSS views are presented in the context of the International Safeguards and Foreign Physical Security Review.

  
James R. Shea, Director  
Office of International Programs

Enclosures:  
As stated

NOTE: Commissioner comments should be provided directly to the Office of the Secretary, by c.o.b. Thursday, July 10, 1980.

Commission staff office comments, if any, should be submitted to the Commissioners NLT July 8, 1980, with an information copy to the Office of the Secretary. If the paper is of such a nature that it requires additional time for analytical review and comments, the Commissioners and the Secretariat should be apprised of when comments may be expected.

DISTRIBUTION:

Commissioners  
Commission Staff Offices  
Executive Dir. for Opers.  
Secretariat

APPLICATION FOR LICENSE TO EXPORT  
BYPRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL

XSNM01408  
11000313

Submit in Triplicate

Carefully Read Instructions on Back

1. DATE OF APPLICATION November 3, 1978	2. APPLICANT'S REFERENCE NO. (if any) NIAC-78-1103	3. COUNTRY OF ULTIMATE DESTINATION Japan
4. NAME OF APPLICANT Nissho-Iwai American Corporation STREET ADDRESS 1211 Avenue of the Americas CITY, STATE, AND ZIP CODE New York, NY 10036		5. ULTIMATE CONSIGNEE IN FOREIGN COUNTRY (Name and address) Japan Atomic Energy Research Institute 1-1-13, Shinbashi Minato-ku Tokyo 105
6. INTERMEDIATE CONSIGNEE IN FOREIGN COUNTRY (Give name and address. If same as ultimate consignee, state "Same.") D 6450 NUKEM GmbH and Nuclear Fuel Industries, Ltd. Hanau, West Germany (Converter) 23-5, Nishishinbashi D 6450 Hanau West Germany 3-Chome Minato-ku, Tokyo 107 (Fabricator)		7. IF PURCHASER IN FOREIGN COUNTRY IS OTHER THAN ULTIMATE CONSIGNEE, GIVE NAME AND ADDRESS. (If same, state "Same.") Same
8. (a) QUANTITY TO BE SHIPPED (See instructions on back) 47.162 KgU 44.003 KgU-235	(b) COMMODITY DESCRIPTION (Include chemical and physical form; for special nuclear material and byproduct material also specify isotopic content; if in a device, identify the device, manufacturer, and model number.) Uranium in the form of Uranium Hexafluoride enriched to a maximum of 93.30 percent. 103	

(c) SHIPPING AND PACKING PROCEDURES (Required for special nuclear material. See instructions on back.)

The shipment will be packaged in accordance with 10 CFR part 71.

9. END USE OF COMMODITIES COVERED BY THIS APPLICATION: (Describe fully, stating what will be produced or manufactured, what service will be rendered, or the nature of the research that will be performed.) (See instructions on back for special nuclear material.)

Will be used as fuel for the Japan Materials Testing Reactor (JMTR) in the Oarai Research Establishment, Oarai, Ibaragi, Japan, the Japan Research Reactor No. 2 (JRR-2) in the Tokai Research Establishment, Tokai, Ibaragi Japan and the Japan Research Reactor No. 4 (JRR-4) in the Tokai Research Establishment, Tokai, Ibaragi Japan.

10. The applicant, and any official executing this certificate on behalf of the applicant named in Item 4, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Parts 30 and 36 (if for byproduct material) or Part 40 (if for source material), or Part 70 (if for special nuclear material), and Part 71 (for transport of radioactive material, if applicable) and that all information contained herein, including any supplements attached hereto, is true and correct to the best of their knowledge and belief.

11-13-78 copy to  
PDR + AEC  
changes made  
per telecon w/ Mr. Tsuji 11/17/78  
1978 NOV 8 PM 1 31  
Dupe of 7844224225

Nissho-Iwai American Corporation

(Applicant named in Item 4)

By:

Y. Yoshida

General Manager

(Title of certifying official authorized to act on behalf of the applicant)

000025  
dbk  
11-17-78



# Japan Atomic Energy Research Institute

1-1-13, Shinbashi, Minato-ku, Tokyo 105

Telephone: (03) 503-6111

Telex: JAERI J24596

Cable: JAERINIPPON TOKYO

Our ref.:

To whom it may concern:

## End Use Statement

The undersigners certify that a quantity of

47.162 kgs of uranium (93.3 % U-235 enriched)

in form of UF<sub>6</sub> containing 44.003 kgs of U-235 which will be furnished to us under a Short-Term Fixed-Commitment Contract with US-DOE will be used by us as follows for the fuel of Japan Materials Testing Reactor (JMTR) in our Oarai Research Establishment, Oarai, Ibaragi, Japan Research Reactor No. 2 (JRR-2) in our Tokai Research Establishment, Tokai, Ibaragi, Japan and Japan Research Reactor No. 4 (JRR-4) in our Tokai Research Establishment, Tokai, Ibaragi, Japan.

35.624 kgs of uranium for JMTR	33.238 kgs U-235
10.584 kgs of uranium for JRR-2	9.875
0.954 kgs of uranium for JRR-4	0.890

The enriched UF<sub>6</sub> shall be converted into uranium metal by NUKEM GmbH, D-6450 Hanau 11, Federal Republic of Germany and fabricated into fuel elements by Nuclear Fuel Industries Ltd., 23-5, Nishishinbashi 3-chome, Minato-ku, Tokyo, Japan.

We authorize Nissho-Iwai American Corporation, 1211 Avenue of the Americas, New York, U.S.A. to apply for the export license.

JAPAN ATOMIC ENERGY RESEARCH INSTITUTE

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U.S. NRC

Masaharu Nonaka

Head, Division of Contracts

1978 NOV 8 PM 1 32

Tokai Research Establishment  
Tokai-mura, Ibaraki-ken 319-11  
Telephone: (029267) 4111

Takasaki Research Establishment  
Takasaki-shi, Gunma-ken 370-12  
Telephone: (0273) 46-1211

Oarai Research Establishment  
Oarai-machi, Ibaraki-ken 311-13  
Telephone: (029267) 4111

CHECKLIST FOR USE IN REVIEW OF REQUESTS FOR  
HIGHLY ENRICHED URANIUM TO DETERMINE  
TECHNICAL AND ECONOMIC JUSTIFICATION

RECEIVED  
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1978 NOV 8 8:01 PM, 1978  
Date

1. Name of Facility: Japan Research Reactor No.2 (JRR-2) EXPORT/IMPORT
2. Quantity of Uranium Requested (Kgs): 10.584 KgsU (10.584 KgsU) in the form of  
Uranium Metal
3. Enrichment in the Isotope U-235 (%): 93%
4. Sale or Toll Enriching: Toll enriching
5. Current Core Loading (Kgs of U-235): Approx. 4.7 Kgs U-235
6. Current Power Level (MWth): 10 MWth
7. Criticality and Full Operating Power Dates and Power Rating (If request involves new facility): Criticality (October, 1960), 1 MWth (March, 1961), 3MWth (November, 1961), 10 MWth (December, 1962)
8. Name of Converter and Fabricator of Fuel: Converter: NUKEM GmbH (West Germany)  
Fabricator: Nuclear Fuel Industries, Ltd. (Japan)
9. Breakdown of Fuel Inventory (Kgs of U-235):
- a. Amount of U-235 in Fabrication outside USA Including Scrap  
Allowances: Approx. 12.1 Kgs U-235
- b. Amount of U-235 in Storage in Completed, Unirradiated Fuel Elements:  
Approx 9.9 Kgs U-235
- c. Amount of U-235 in Core: Approx. 4.7 Kgs U-235
- d. Amount of U-235 in Spent Fuel Storage within the Community Including Chemical Reprocessing Plants, and the Reprocessing Schedule for Such Material.  
Approx. 11.4 Kgs U-235, Approx. 7.6 Kgs U-235 in 11.4 Kgs U-235 in August, 1978 at USDOE Savannah River Plant
- e. Amount of U-235 Lost and/or Consumed During Operation of Above Facility:  
Approx. 1.9 Kgs U-235/year
- f. Amount of U-235 per Fuel Element: 0.195 Kgs U-235
- g. Average Core Life: Approx. 6 months
- h. Average Lead Time for Conversion and Fuel Fabrication if Conversion and Fabrication is to be Done Abroad:

Approx. 3-4 years



# Nissho-Iwai American Corporation

Rockefeller Center  
1211 Avenue of the Americas  
New York, N.Y. 10036  
212/730-2000  
For Information  
Direct Number  
730-2255

Telex Numbers:

RCA 232641/233567  
ITT420405  
TWX 710-581-6252  
WUI 620-912  
WUD 126110/12329

Branch Offices:

San Francisco  
Los Angeles  
Portland  
Seattle  
Chicago  
Houston  
Detroit  
St. Louis  
Anchorage  
Atlanta

November 3, 1978

Mr. Neil Moore  
Export/Import and International Safeguards  
Office of International Programs  
Nuclear Regulatory Commission  
Washington, DC 20555

Attn: Mr. Neil Moore

Subject: Export License Application for Enriched Uranium

Dear Mr. Moore:

Enclosed please find the Export License Application, End Use Statement and Checklist for use in review of requests for highly Enriched Uranium to determine technical and economic justification.

We would appreciate your earliest review on the captioned application.

Very truly yours,

*N. Tsuji*

N. Tsuji  
Assistant Manager  
Machinery Project Development Dept.

NT:eh

Enclosure

cc: 1) Atomb  
2) Mr. Dixon B. Hoyle, Director  
3) Mr. Suzuki, Japanese Embassy

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U.S. NRC

1978 NOV 8 PM 1 31

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EXPORT/IMPORT  
NRC PL SFGRO5

**Nissho-Iwai  
American  
Corporation**

Rockefeller Center  
1211 Avenue of the Americas  
New York, N.Y. 10036  
212/730-2000  
For Information  
Direct Number  
2255

Telex Numbers:

RCA 232641/233567  
ITT420405  
TWX 710-581-6252  
WUI 620-912  
WUD 126110/12329

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St. Louis  
Anchorage  
Atlanta

Our Ref: MACPJ 2348 KY

January 25, 1980

Mr. N. Moore  
Nuclear Regulatory Commission  
Office of International Programs  
7735 Old Georgetown Road  
Bethesda, MD 20014

XSHMO 1408

Re: Export License Application Number XSNM-1408  
Applicant's Reference No. NIAC-78-1103  
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Dear Mr. Moore:

This is to advise you that this material will now be transported from the United States directly to Japan, in the form of Uranium metal. Therefore, please remove NUKEM, GmbH, W. Germany as Intermediate Consignees.

This material will be fabricated by Nuclear Fuel Industries, Ltd., Tokyo, Japan and will be supplied to us by the U.S. DOE.

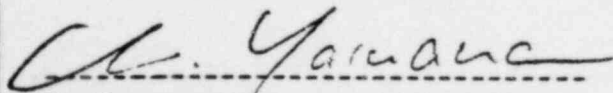
Please also list the following as Intermediate Consignee (for Transport purposes only):

Nissho-Iwai Company, Ltd.  
Tokyo Head Office  
4-5 Akasaka, 2-Chome  
Minato-ku, Tokyo  
107, Japan.

Thanking you in advance for your help and cooperation.

Very truly yours,

NISSHO-IWAI AMERICAN CORPORATION



K. Yamana, Manager  
Nuclear Machinery & Fuel Department

KY:ml

cc: 1) MACPJ Letter File  
2) HHM-0193  
3) Tokyo, ATOMN

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DEPARTMENT OF STATE

Washington, D.C. 20520

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JAPAN  
XSNM01340 &  
XSNM01408

BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

JAN 29 1980 EXPORT/IMPORT AND INTERNAT'L SFGRDS

XSNM01340+  
XSNM01408  
HEU for Japan

MEMORANDUM FOR JAMES R. SHEA  
NUCLEAR REGULATORY COMMISSION

Enclosed is an Executive Branch review of two license applications for export of highly-enriched uranium to Japan, one via the Federal Republic of Germany for conversion. In accordance with the Nuclear Non-Proliferation Act of 1978 (P.L. 95-242), the Executive Branch considered how the requirements of Section 126 a.(1) of the Atomic Energy Act, as amended, are met, including the specific criteria of Sections 127 and 128, as well as certain additional factors, envisaged by Section 126 a. (1).

The Executive Branch, on the basis of its review of these applications, has concluded that the requirements of the Atomic Energy Act, as amended by P.L. 95-242, have been met and that the proposed exports would not be inimical to the common defense and security of the United States, provided that the material proposed for export shall, for the international portion of shipment, be transported by all-cargo military aircraft or in quantities not to exceed 15 kilograms U-235 per flight by commercial cargo aircraft or 5 kilograms U-235 if transported by sea. It is the view of the Executive Branch that the licenses should be conditioned accordingly.

A detailed analysis for Japan was submitted April 30, 1979 for NRC application No. XSNM01435. In regard to the export to the FRG, a EURATOM member state, as intermediate consignee, a detailed analysis for the FRG and the European Community was submitted November 27, 1979 for application No. XU08427. There has been a material change in circum-

since those submissions. (the FRG) have adhered to for Cooperation with the Executive Branch recommends license.

DUPLICATE DOCUMENT

Entire document previously entered into system under:

ANO 8002080244

No. of pages: 7



DEPARTMENT OF STATE

Washington, D.C. 20520

BUREAU OF OCEANS AND INTERNATIONAL ENVIRONMENTAL AND SCIENTIFIC AFFAIRS

JUN 18 1980

Mr. James R. Shea  
Director  
Office of International Programs  
US Nuclear Regulatory Commission  
Bethesda, Maryland 20555

*XSNM01340  
and  
XSNM01408*

Dear Mr. Shea:

This is in reference to my memorandum dated January 29, 1980 conveying a favorable Executive Branch recommendation with respect to the authorization of two exports of highly-enriched uranium to Japan (applications XSNM01340 and XSNM01408). In that recommendation we expressed the view that the licenses should be conditioned to require transport of the highly-enriched uranium for the international portion of the shipment by all-cargo military aircraft, or by commercial cargo aircraft in quantities not to exceed 15 kilograms or by sea in quantities not to exceed 5 kilograms.

We have now been informed by the license applicant that there will be no intermediate consignee outside of Japan for either export and that the material is to be obtained in metallic form from Oak Ridge and transported directly to Japan by sea in tranches of 5 kilograms or less. Since we understand that the NRC staff has no objection to the foregoing mode of transportation, the Executive Branch is of the view that a license condition requiring specific modes of transport is no longer necessary.

Please let me know if you should have any questions regarding our position on this matter.

Sincerely,

*Louis V. Nosenzo*  
Louis V. Nosenzo

Deputy Assistant Secretary

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1980 JUN 19 10 11 AM

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BUREAU OF OCEANS AND ENVIRONMENTAL AFFAIRS

\*Copy to PDR and ACC 6-19-80.\*

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